KOENIG
step forward

KOENIG SOLUTIONS · COURSE OUTLINE

TAMCO HV Switchgears: SF6, Vacuum & Relays

Learn to select, operate, maintain and protect TAMCO high voltage switchgears, from SF6 and vacuum circuit breakers to relay protection schemes.

5 Days	5	38
DURATION	MODULES	TOPICS

COURSE OVERVIEW

This course examines the role of medium and high voltage air insulated and gas insulated switchgears in power systems, covering circuit breakers, switchgear selection, substation layouts and arrangements. It then looks at SF6 and vacuum circuit breaker technology, including compression principles, SF6 hazards, interrupter operation and maintenance. The course moves on to TAMCO switchgear blueprints, components, busbar configurations and special features, followed by maintenance and testing strategies such as preventive and condition-based maintenance and documentation requirements. It concludes with protection principles and relay types for high voltage installations incorporating TAMCO switchgears, including fault currents, busbar protection schemes and differential relays.

WHO THIS COURSE IS FOR

- **Switchgear Engineers**
- **Substation Engineers**
- **Maintenance Technicians**
- **Protection Engineers**
- **Electrical Design Engineers**

LEARNING OBJECTIVES

- Explain the role of switchgears in medium and high voltage power systems
- Identify switchgear symbols, layouts and substation arrangements
- Compare air insulated and gas insulated switchgear designs
- Describe compression principles and hazards associated with SF6 gas
- Explain operation and maintenance of vacuum interrupters and contactors
- Interpret TAMCO switchgear blueprints and special features
- Apply preventive and condition-based maintenance strategies to switchgears
- Analyse protective relay types and busbar protection schemes

COURSE SYLLABUS

5 Modules, 38 Topics

DAY 1

01

The Role and Importance of the Medium & High Voltage Air Insulated and Gas Insulated Switchgears in Power Systems

TOPICS

- Circuit Breakers, Ring Mains Unit and Earth Switches
- Switchgear Symbols on Single-line Diagrams
- Switchgear Selection
- Substation Switchgear Layouts
- Substation Arrangements
- Auto-reclosers
- Air Insulated Switchgear vs. Gas Insulated Switchgears
- Live Tank and Dead Tank HV Circuit Breakers

DAY 2

02

Sulphur HexaFlouride (SF6), Green Gas for Grid and Vacuum Circuit Breakers

TOPICS

- Compression Principles
- SF6 Hazards and Test Equipments
- Dead and Live Tank HV Circuit Breakers
- Operation Mechanisms of HV Circuit Breakers
- Vacuum Interrupters Operation and Maintenance
- Types of Vacuum Circuit Breaker Characteristics
- Other Applications and Installations of Vacuum Interrupters
- Vacuum Contactors

DAY 3

03

TAMCO High Voltage Switchgears Blueprint, Components, Operation and Maintenance

TOPICS

- Air Insulated Switchgear
- Gas Insulated Switchgear
- Single and Double Busbar Switchgear
- TAMCO Switchgear Special Features
- Interpreting TAMCO Blueprint
- Ring Mains Unit
- Neutral Earth Resistors
- Container Sub-station

DAY 4

04

Maintenance and Testing of TAMCO High Voltage Switchgears

TOPICS

- Importance of Maintenance and Testing
- Maintenance Strategies
- Preventive and Condition-based Maintenance Services including Thermography
- TAMCO material lists and layout diagrams
- Documentation Requirements
- Maintenance Post-commissioning
- Typical Switchgear Temperature Alarms

DAY 5

05

Protection and Types of Relay of High Voltage Installation Incorporating TAMCO Switchgears

TOPICS

- Characteristics of Switching Devices
- Fault Currents
- Short Circuit Current Situation
- Protective Relay Types and Characteristics
- Busbar Arrangement Protection Schemes
- Numerical and Solid State Relays
- Differential Relays

WHAT IS INCLUDED

Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

ABOUT KOENIG

Who We Are

Established in 1993, Koenig Solutions is a globally recognised training provider with 35+ technology partnerships, 5,000+ training programmes and a network of certified instructors and subject matter experts, supporting individuals and enterprise teams worldwide.

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